Name
Student I.D.

BE_OM201

QuiZ#1 (2 Questions for 5 points)

22 January 2020

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1) A firm cleans chemical tank cars in the St. Louis bay area. With standard equipment, the firm typically cleaned 70 chemical tank cars per month. They utilized 10 gallons of solvent, and two employees worked 20 days per month, 8 hours a day. The company decided to switch to a larger cleaning machine. Last April, they cleaned 60 tank cars in only 15 days. They utilized 12 gallons of solvent, and the two employees worked 6 hours a day.
(a) What was their raw material and their labor productivity with the standard equipment?
(b) What is their raw material and their labor productivity with the larger machine?

Answer:

Resource	**(a) Standard Equipment**	**(b) Larger Machine**
Raw material (Solvent)	$\frac{70}{10} = 7$ cars/gallon	$\frac{60}{12} = 5$ cars/gallon
Labor	$\frac{70}{320} = 0.22$ cars/hour	$\frac{60}{180} = 0.33$ cars/hour

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2) Martin Manufacturing has implemented several programs to improve its productivity. They have asked you to evaluate the firm's productivity by comparing this year's performance with last year's. The following data are available:

	Last Year	This Year
Output	10,500 units	12,100 units
Labor Hours	12,000	13,200
Utilities	$7,600	$8,250
Capital	$83,000	$88,000

Has Martin Manufacturing improved its productivity during the past year? Show your calculation in detail to support your answer.

Answer: Productivity improved in all three categories this year; capital productivity showed the greatest increase, and labor productivity the least.

Resource	**Last Year**	**This Year**	**Productivity Change**	**Productivity Percentage Change**
Labor	10500 / 12000 = 0.88	12100 / 13200 = 0.92	0.04	4.55%
Utilities	10500 / 7600 = 1.38	12100 / 8250 = 1.47	0.09	6.52%
Capital	10500 / 83000 = 0.13	12100 / 88000 = 0.14	0.01	**7.69%**